THE LABIAL PALPI OF *TRICHOPHYSETIS CRETACEA* AND *ARGYRIA AMOENALIS*.

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(*Communicated by Dr. A. J. Turner.*)

(Two Text-figures.)

[Read 25th November, 1925.]

While engaged in a study of the maxillae in the Lepidoptera, the writer came across two instances of very unusual structure of the labial palpi. In both cases the species belonged to the Pyralidae, one, *Argyria amoenalis* Butl., being placed in the subfamily Crambinae and the other, *Trichophysetis cretacea* Butl., in the Pyralinae. I cannot learn that these interesting instances have already been referred to; it will therefore be useful to have them described and figured.

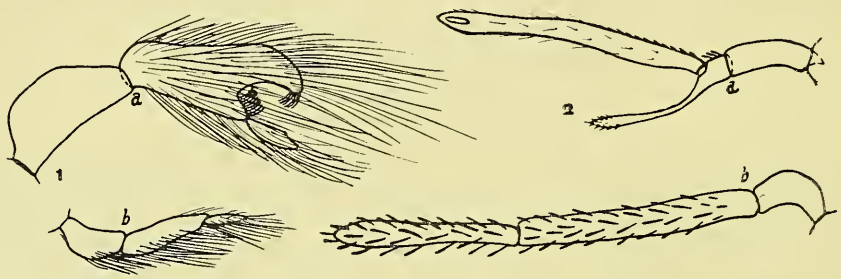
The labial palpi of the Lepidoptera are, on the whole, very uniform in structure. Such differences as there are arise, firstly, from their covering of hairs or scales, the extent and direction of which often result in greatly modifying the apparent shape of the segments; secondly, from the direction of the segments themselves, as drooping, porrect or curved upwards; and, thirdly, as the result of atrophy, the three original segments being sometimes reduced to two, or to one only; in a few instances the palpi have entirely disappeared. But in the vast majority of Lepidoptera the labial palpi consist of three more or less cylindrical segments, the first, or basal, being almost always a short one. A detailed account of the two interesting instances referred to above will now be undertaken.

Trichophysetis cretacea Butl.

In this species the basal segment of the palp in the male is of normal structure; it is cylindrical and slightly curved. The third, or terminal, also shows nothing unusual. It is long, cylindrical and blunt-pointed, and exhibits a prominent Johnston's organ at the apex. The second segment is greatly modified. It articulates in the usual manner with the first segment, but almost immediately gives rise to the third segment and extends inwards as a slender tentacle. This tentacle is a little less than half as long as the terminal segment and has its apical half slightly swollen and clothed with minute sensory hairs.

I am not aware of any other instance of a process being found on the second segment of the labial palp, though an apical process of the first segment occurs in some species of *Porina*, and in *Sabatinca*. The process in *Trichophysetis* is, however, perhaps more correctly to be regarded as the actual segment rather than an outgrowth, the articulation of the terminal segment having worked down from the apex to near the base of the second segment, and the portion of that segment left projecting having become modified into a tentacle-like structure. The female of the species has quite ordinary palpi.

The labial palpi of this species are, I believe, the most strangely modified in the whole of the Lepidoptera. The basal segment is stout, being much swollen ventrally. The second segment is also thick, but is broadened apically. On the upper surface of the broadened portion the organ is widely and deeply excavated. On the apex of the distal area of this excavation, and bending over it, is a dense patch of short, thick, slightly curved hairs. On the proximal portion is a similar, but more extensive, patch, directed towards the distal area. The third segment is reduced to a small subtriangular piece, articulating with the apex of the proximal side of the excavation. The whole of the second and third segments is covered with very long fine hair.



Text-fig. 1.—*Argyria amoenalis* Snel. Labial palp. *a*, male; *b*, female.
Text-fig. 2.—*Trichophysetis cretacea* Butl. Labial palp. *a*, male; *b*, female.

Argyria amoenalis Snel.

This curious apparatus is strongly suggestive of a strigil. The opposing tufts of hair would form the brushing apparatus, while the modified third segment would act as a spring to keep the organ undergoing the cleaning process pressed against these brushes. But the usual tibial strigils are present, so that it is hardly likely to be for the benefit of the antennae that the labial strigils have been developed. Is it possible that it may be the cleaning of the haustellum for which the structures are designed? But, if so, how is it that the female of *amoenalis* possesses quite ordinary palpi? Also, it seems probable that the apparatus is confined to this one species of the genus. *A. plumbolinealis* Hmpsn., *A. pentadactyla* Z. and *A. strophaea* Meyr. have been examined and found to possess normal labial palpi. A close study of the habits of both sexes of *Trichophysetis cretacea* and *Argyria amoenalis* might explain much in relation to the very interesting modification of their labial palps. Perhaps some Australian lepidopterist will, sooner or later, be able to throw light on the matter.

For the material on which this paper is based I have to offer my best thanks to Dr. A. Jefferis Turner who very kindly came to my assistance with various specimens.